memory device in combination with the other features recited in each of independent claims 1 and 4. The Ho et al. patent also does not describe a memory board including a memory controller converting a control for the memory device as recited in combination with the other features of independent claim 7.

For instance, with reference to Figure 3 and the description starting at paragraph 26 on page 6, the application describes an example of the invention in which a memory board 3 comprises a printed wiring board 300 including a connector 310 and memory devices (e.g., one or more SDRAMs 321-324) mounted on the printed wiring board. The memory board 3 also includes a memory controller 360 that operates to mediate between an apparatus (e.g., a main side unit controller) and the memory device. In the example described starting at paragraph 0034, the memory controller is a programmable device, for example, shown as controller 360b in Figure 5. Thus, the content of mediating function stored in the controller 360b can be programmed or changed.

These features are broadly encompassed by independent claim 1, which is directed to a memory board comprising a printed wiring board having a connector terminal, a memory device mounted on the printed wiring board and storing data used by an apparatus to which the printed wiring board is attached, *and a memory controller mediating data communication between the apparatus and the memory device.* Claim 1 further recites that the memory controller is a programmable device where the content of the mediation is changeable.

In setting forth the rejection of this claim, page 2 of the Office Action refers to column 1, lines 19-23 and column 3, lines 10-20 of the Ho et al. patent and asserts

that the Ho et al. patent discloses a printed wiring board comprising a printed circuit board having a connector terminal. The part of Ho et al. at column 1 relied upon generally describes "memory boards" as being a type of expansion memory inserted into an expansion slot in a chassis of a computer and that they "are typically printed circuit boards (PCBs) populated with an array of semiconductor memory chips." The more specific disclosure cited in Ho et al. at lines 10-20 of column 3 identifies memory modules 12A, 12B, which are inserted into expansion module sockets 14A, 14B located in a computer chassis (see, Figure 1). Thus, the Action appears to assert that the memory modules 12A and 12B constitute PCB "memory boards" comprising a socket connection part.

With respect to the next recited feature of "a memory controller mediating data communication between the apparatus and the memory device," the Action refers to column 3, lines 47-51 of Ho et al., which describe a controller 22 connected to a programmable logic device 16 (PLD). From this description in Ho et al., it appears that the Examiner considers both the PLD 16 and controller 22 of Ho et al. to be the controller of the memory subsystem 10. It is respectfully submitted, however, that the SIMM memory modules 12A, 12B described in the Ho et al. patent include neither the PLD 16 nor the controller 22. Rather, these devices are located in a computer chassis (see column 3, lines 27-34) separate from the memory modules 12A, 12B. Consequently, the Ho et al. patent does not disclose a memory board including a controller as claimed. See column 3, lines 29-34.

A similar distinction is set for in independent claim 4. For instance, claim 4 recites that image forming apparatus comprises a memory board including, *inter*

alia, a memory device mounted on the printed wiring board and storing data used by an apparatus to which the printed wiring board is attached, and a memory controller mediating data communication between the apparatus and the memory device.

Independent claim 7 also is directed to a memory board comprising, *inter alia*, a printed wiring board, a memory device mounted on the printed wiring board and a controller. Hence, claim 7 sets forth a distinction similar to the distinctions pointed out above with respect to claims 1 and 4.

As a result of this distinction, the claimed invention can provide a number of advantages features. For example, the inclusion of a controller with the memory board as claimed can reduce a load on a main unit controller because it may not be necessary to change the control of the main unit controller. Also, the claimed invention provides for use of memory devices having new specifications or of varied type without requiring changes the control content of a main unit controller. These exemplary advantageous features would not be present in the memory subsystem of Ho et al. because the controller 22 and PLD 16 are a part of the chassis of the computer and not the memory module 12A or 12B.

Accordingly, the Ho et al. patent fails to describe all recited features of independent claims 1, 4 and 7. As such, the rejection of these claims should be withdrawn.

Claims 2, 3, 5, 6, 8 and 9 are believed allowable, if for no other reason that these claims depend from one of independent claims 1, 4 and 7, and further for the additional features recited in these dependent claims.

For at least the foregoing reasons, it is respectfully submitted that all pending claims are allowable. Reconsideration and withdrawal of the rejections is therefore respectfully requested.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: February 16, 2005

By: _____
John F. Guay
Registration No. 47,248

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620